/17 cont./

412 Today the primitive tools are limited to those which Nature
239 provides for specific purposes, such as scraping knives of mussel shells, chisel-shaped implements made of rodent teeth, flat stones for pounding bast cloth, the coarse bony tongue of the pirarucú as a rasp, etc.

178 Despite widespread use of foreign tools, the industry of this people has completely retained its national character. Fortunately, among the Karaya, there is still no question of any decline in it such as almost always sets in as a consequence of the introduction of European products, as is well known. Fitness, beauty of form, and care in execution are still characteristic of their work.

501 Canoe construction is on a rather high level, although the method of production is relatively simple. The boats (auñõ) are long narrow dugouts with the front and back parts extending equally far and somewhat sloping at the tips. Given the many shallows of the river this form is the most efficient, since it facilitates the landing and launching of the vessel (Pl. IV /see p. 106 /, 2).

396 The material is the straightest possible trunk of the ipiuba
824 (Tecoma sp.) or jatoba (Hymenaea sp.). Since the forward part is from the lower, the back part from the upper section of the trunk, the canoes are usually somewhat broader in the front than in the back. The hollowing is done with an ax and aided by fire. Since the cavity of the boat is not artificially widened by special manipulations such as Im Thurn describes (op. cit., p. 293), but rather the original diameter of the trunk also determines that of the boat, the canoes are usually disproportionately narrow in proportion to their length and tip over easily. They
501 are smoothed over inside and outside with great care. Arrangements for sitting are not present. There are set in on the other hand, rows of short crossbars, which, fixed a few inches above the bottom, protect any cargo from getting wet.

The oars (nahere, Pl. VIII /see p. 110/, 1-3) are of excellent workmanship. They are 1 1/3 to 1 1/2 meters long, half of which is taken up by the handle provided with a cross-grip. The blade is straight, leaf-shaped, 15-20 centimeters wide, and runs out at the bottom into a lancet-shaped, offset tip. Elegant

/285 cont./

237 two holes in the center are sewed on the belt of the long string-
321 skirts of the girls (Ill. 69), as well as on the cylinder-bands of the dance masks. As spoons and scrapers they use mother-of-pearl mussel shells, which are only slightly worked, but are usually used in the crude state.

287 Concerning the feather technique, see below in connection with the tying, knotting, and plaiting technique /see pp. 233 ff./.

824 The utilization of the vegetable kingdom is very extensive. The cane species are used remarkably little; apparently the region is poor in them.

G. The wood of trees is made into boats, poles, oars, mortars and pestles, stools, lances, bows, throwing boards, arrow points, manioc grating boards, lip plugs, comb teeth, etc. Soft or hard woods are used, depending on the purpose. I was not always able to learn which kinds of wood were used for the individual implements. Spears consist of so-called aruera wood, bows of hard palm wood, boat poles of long, slender trees with very light wood. Soft wood is used for stools, lip plugs, and manioc grating boards; all the other implements consist of hard wood. Of the cane species, taquara is used as arrow shafts, gibade and similar types as ear rods.

396 I am most fully informed about boatbuilding. The boats
[962] are built by the men. All of them understand this art, though
[937] many confine themselves to buying boats from others in exchange
[963] for an iron axe. /286/ Apparently certain persons make boats in larger numbers for the village and then sell them. Thus, a few hours downstream from Schischá I met two families from this village who had erected temporary huts for themselves here in the wilderness, in order to build boats in the vicinity. The making of a small boat is said to take four days, a larger one eight days. These time estimates, however, seem to me to be
[824] very low. The trunk of the lantim tree (Calophyllum: dälïõ) is used as material for the boats; Ehrenreich mentions pau d'arco and jatoba, Königswald also jatahy and others. The trees are felled in the forest and crudely worked; first the outer shape is hewed out with an ax and then the interior is likewise hollowed

/286 cont./

396 out with the ax. In this crude shape the boat is brought into the village and placed on two forked posts about half a meter high (Pl. 56, Ill. 5). With oaguassu palm fronds, which are laid in the hollow, the interior space is completely burned out and blackened, while at the same time burning through the walls is prevented by quickly snatching out the fire. Then, while the wood is still warm, about 20 cross-sticks, each approximately three centimeters thick, are stretched from wall to wall; palm fronds are propped against the boat all around and are lighted at four or five places on either side by one man each. After about five minutes the outside charring and blackening of the boat is completed. The struts remain in the boat until the next day; they are very bent. Afterwards the boat is put through an inspection, during which possible irregularities, especially of the bottom, which could cause disturbances in the balance, are removed with the ax. At the front, narrowly tapering end a hole is cut into the right wall, directly under the edge, for the loop into which the boat pole is stuck during the rowing or lying quietly on the bank. This hole is supposedly cut in with a sharp knife under the application of a wooden mallet.

415 412 114 I did not see wooden vessels. Ehrenreich brought back a few: a round vessel hollowed out from a tree root, with a carrying string (Berlin 3875) and two spoons, the handle of one of which terminates in a tucano head (3934, 3935). In the case of fire [372] sticks, according to him, the drilling stick consists of taquara, the base of Bixa orellana.

415 [824] Of larger fruits only gourds are used. They are carefully dried by being stuck on sticks that stand in the glaring sun and in the sand of the sandbanks. Later, tied together, they are hung on a vertical stick (Ill. 26 a, b). Hollowed out, they serve as oil containers, as hanging containers for white down feathers, with a bast stopper (Pl. 58, Ill. 3a) or wax seal (the hanging band is fastened with wooden wedges; Pl. 58, Ill. 3 b, c), halved paint bowls and eating dishes, smaller ones as spoons. The whole- [531] gourd vessel and larger half-gourd vessels are usually decorated with incised ornamentation, the smaller half-gourds with Pyrography.

6:Cook M-3,4 (ca. 1900) 1909
SP9 Caraja SP9

CHAPTER IX.

KARAYÁ ACTIVITIES.—CANOE MAKING.—WEAPONS.—NATURE MADE UTENSILS.—ORNAMENT MAKING.—FAMILY LIFE.—PRIMITIVE ETHICS.—MARRIAGES.—CHILDREN.—GOVERNMENT.

THE industrial activities of the Karayá now make a better showing than in former times, for their primitive tools are now more and more replaced by tools introduced from the civilized world. The old stone-axes have disappeared, and little is known of them. Ancient inscriptions and figures upon the rocks represent men with stone-axes in their hands, but these drawings belong to a remote period.

To-day, the only primitive implements of the Karayá are those that Nature furnishes them ready for use. Their scraping tools, for instance, are sharp-edged shells; their chisel-like instruments are the teeth of certain powerful rodents; and smooth, flat stones, formed by the action of the water, are used as discs upon which to beat and prepare the web of bark which is their cloth.

It cannot be said of the Karayá that their primitive industries have fallen, in any degree, into decay because they have begun to use the tools of civilized men. Adaptability, beauty of form, and carefulness of execution, is evident in all their workmanship. Canoe building among them, for instance, has reached a high degree of perfection, though the method of constructing them is very crude. These canoes, which are all dugouts, are long and slim, and taper gradually to a point at both bow and stern. This form is perhaps best

6:Cook M-3,4 (ca. 1900) 1909
SP9 Caraja SP9

suited to their purpose owing to the many shallow places in the river, and because it facilitates landing and pushing off. The tree selected to be transformed into a canoe is an ipiúba or a jatóba, which must be very straight. Strange to say, the butt of the tree becomes the bow of the canoe; therefore, the finished canoe is broader at the bow than at the stern. As these children of Nature are preeminently imitators of Nature, it seems quite probable that in constructing their canoes, they have in mind the form of the fish, which always goes big end first.

The log is first hewn into the form of a canoe, then hollowed out with axes and with fire. It is not broadened amidships, therefore, when finished, it is no wider than was the original tree. As it is thus very narrow and tapers gradually and uniformly high above the water at both bow and stern, it tips over very easily. Great care is taken to make it perfectly smooth outside and in. No seats are provided, but sticks are placed across the bottom to keep both the occupants and the freight out of any water that may leak in. As every family has a canoe, quite a fleet of them may be seen in front of every village. These canoes are propelled by paddles five feet in length, half of which is blade, the point terminating like a lance. They are made with great care and labor, and are often nicely ornamented. When canoeing, the pilot is always seen perched in a squatting position on the extreme point of the stern with his knees drawn up to his chin.

The weapons of the Karayá are as of old—there has been no change whatever. In common with other Brazilian tribes, the length and stiffness of their bow is according to the height and strength of its owner. Some bows are seven feet in length, while a boy's bow is two and a half or three feet long. They are made of the wood of a certain palm-tree which the Brazilians call *pau de arco*—bow wood—which is the wood used by all the tribes of central and North Brazil for their bows. The bow is made flat inside, and the extremities taper to a point. Several lengths of string, carried